CHAPTER 2K
LOCK GATE ERECTION

2K-01. GENERAL

a. Controls — Check controls are set up for checking gates during fabrication and erection.

b. Shop and Erection Drawings

(1) Check markings of material for agreement with drawings.

(2) Check delivery of equipment against erection sequence.

(3) Check drawings to make sure contractor has indicated where, when, and how the various components will be erected.

(4) An erection procedure should be required.

c. Match Marks

(1) Check all components are match marked.

(2) Check during erection, that items assembled have the same match marks aligned.

2K-02. INSPECTION REQUIREMENTS. GENERAL

a. Structural Members

(1) Check prior to erection, for damage such as warps, bends, twists, etc.

(2) Check all machined surfaces are protected.

(3) Check all materials have been shop inspected and passed necessary shop tests.

(4) Check all steel is match marked and erection marked.

(5) Check metal surfaces inaccessible after assembly have been painted.

b. Embedded Items — Check anchor bolts, sill angles and bearing plates, are aligned, properly located, and set at the correct elevations.

c. Appurtenant Items - Check the installation and adjustment of appurtenant parts of the gates such as seals, quoins, and miter blocks and mitering devices.

d. Painting - See Chapter 9A.

a. Tests and Trials - Each complete machinery and structural unit should be tested and operated as required by the specifications to demonstrate that it meets the requirements of the specifications in all respects.

2K-03. RIVETED CONSTRUCTION

a. Temporary Erection Connections

(1) Check surfaces bolted together have completed metal to metal contact.

(2) Check sufficient erection bolts are used to hold connecting members in specified alignment.

(3) Check sufficient number of drift pins are used to obtain alignment of components without distortion of connection holes.

b. Riveted Joints

(1) Check for loose rivets.

(2) Check for rivet heads not snugged up to metal.

(3) Check rivets for improper heating.

(4) Check rivets for proper length.

2K-04. WELDED CONSTRUCTION

See chapter 5B.

2K-05. MITER GATES

a. Check pintle base for accurate setting.

b. Check prior to start of gate assembly that pintle base, pintle, and pintle bushing are thoroughly clean and lubricated.

c. Check alignment and grade of gate framework. Continuous checking of this framework is recommended.

d. Check sleeve nuts of the top anchorage are correctly centered.

e. Check top anchorage for assembly, cleanliness, and lubrication.

f. Check installation of gudgeon pin for fit, cleanness and lubrication.

g. Check gate diagonal prestressing operation after complete welding and/or riveting of the gate leaf and assembly of top anchorage.

h. Check gate leaf is cleared of all blocking and ties upon completion of assembly, and operated through the limits of travel. Check bottom girder for travel in a horizontal plane and that miter end of leaf is plumb. Check center of gudgeon pin for centering over center of pintle.

i. Check gate leaves in closed or mitered position for setting of fixed quoin post. Check during grouting operation of quoin post for any movement.

j. Check setting of the quoin and miter contact blocks for alignment, contact, etc.

(1) Check that contractor follows closely his approved plan during placement of zinc around these blocks.

(2) Check preheating of the blocks and surrounding metal, also the heating of the zinc.

(3) Check gate leaves during zincing operation for any warping or tendency to move out of plumb.

(4) Check contact blocks several times during zincing operation for maintenance of correct contact with mating blocks.

(5) Check anchor bolts, adjusting bolts, castings, etc., that are in contact or placed near zinc, for damage that might occur during zincing operation.

(6) Check after completion of zincing operations and when gate is cool, all bearing blocks, at both quoin and miter ends, for correct contact between mating blocks.

2K-06. VERTICAL LIFT GATE

a. Check erection of gate frame or skeleton at least once each day for alignment and grade. Check before start of riveting and/or welding operation, for alignment and grade, and alignment of girders, plates, etc., which take bearing loads and/or gate seals.

b. Check lifting cables for equal stress under load after erection of gate and connection to machinery.

c. Check ends of gate are at same elevation throughout limits of gate travel.

d. Check gate for proper clearances with masonry, bearing plates, and guides.

2K-07. SECTOR GATE

a. Check setting and grouting of the pintle.

b. Check pintle is clean and coated with lubricant before bronze bearing and upper pintle casting are set.

c. Check framework frequently during gate assembly for alignment, recheck gate for alignment, before any skin plating is applied and before field welding is started.

d. Check after gate erection, installation of top anchorage connection to embedded anchorage. Center of gudgeon will be in vertical alignment with center of pintle.

e. Check installation of sill plate and side seal members for assembly and clearances with gate.

f. Check that gate has clearances with masonry, bearing plates, etc.

g. Check setting of trunnion assembly before grouting in place. Check cleaning and lubrication of trunnion and trunnion bearing surfaces at time of assembly.

h. Check framework frequently during gate assembly for correct alignment, recheck gate for alignment before any skin plating is applied and before any welding is started.

i. Check setting of fixed side and bottom seal plates.

(1) Check centurion of gate when gate is opened and closed.

(2) Check gate during travel for any unusual noise, vibration, jerk, or bump.

(3) Check for clearances between gate and masonry or embedded plates, beams, etc.

2K-08. TAINTER VALVE

a. Check setting of trunnion assembly before grouting in place. Check cleaning and lubrication of trunnion and trunnion bearing surface at time of assembly.

b. Check framework frequently during gate assembly for alignment. Recheck gate for correct alignment before any skin plating is applied and before any welding is started.

c. Check setting of fixed side and bottom seal plates after assembly is completed.

(1) Check centurion of gate travels in a vertical plane when gate is raised and lowered.

(2) Check gate during travel for any unusual noise, vibration, jerk, or bump.

(3) Check for clearance between gate and masonry or embedded plates, beams, etc.

2K-09. GATE OPERATING MACHINERY

a. Check embedded anchor bolts and leveling devices for location, cleanness, and lubrication.

(1) Check that second pour concrete recesses are thoroughly cleaned of old concrete forms, oil, grease, and all debris.

(2) Check location and size of second pour concrete recessed.

d. Check machinery installation.

c. Check cleaning and lubrication of machinery parts as they are assembled.

d. Check assembly of machinery for position, alignment, grade, and clearances between gears, pinions and shafts.

e. If applicable, check to insure that all hydraulic valves and controls are in the proper operating positions. Verify adequate flushing of hydraulic lines and insure that filters are installed and checked.

f. Check operation of gate through several cycles of travel. Before testing gate operating machinery, verify protective devices.

(1) Check machinery operation for any unusual noise, vibration, binding, rubbing, etc.

(2) Check meshing of gears and pinions.

(3) Check motors, speed reducers or pumps and bearings for any overheating or malfunction.

(4) If applicable, check hydraulic system for leaks.

g. Check that clearances of movable parts of the machine are maintained with masonry.

h. If applicable, check brake operation.

i. Check grouting or concreting of machinery into permanent position after checking and adjusting.

j. Check cleaning, lubricating and painting operations.

k. Check guards are in place.

l. Take care that during welding operations, machinery (bearings, etc.) is not subject to stray currents.